

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE
CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: **NH0023515**

NAME AND MAILING ADDRESS OF APPLICANT:

**Nashua National Fish Hatchery
151 Broad Street
Nashua, NH 03063**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Nashua National Fish Hatchery
151 Broad Street
Nashua, NH 03063**

RECEIVING WATER(S): **wetland adjacent to the Nashua River (NHRIV700040402-08)**

RECEIVING WATER CLASSIFICATION(S): **B**

SIC CODE: **0921 Fish Hatcheries and Preserves**

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ATTACHMENT A – Site Locus Map

I. Proposed Action, Type of Facility, and Discharge Location

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge untreated water used in rearing salmon and shad into the designated receiving water.

The facility previously operated under NPDES permit NH0000639 from August 28, 1974 to April 30, 2004. This permit was terminated by EPA when closure of the hatchery had been proposed, production had been reduced, and use of formalin and chlorine had been eliminated. The facility continued operating at a reduced capacity and continued to submit discharge monitoring reports to NHDES-WD as required by its State Discharge Permit. Based on the decision to expand operations and resume the use of formalin and chlorine, the facility submitted a complete permit application for a new NPDES permit to EPA on October 23, 2006.

The Nashua National Fish Hatchery, located at 151 Broad Street in Nashua, New Hampshire, is a broodstock fish hatchery that produces Atlantic Salmon and American Shad for restoration programs in the Merrimack River system and surrounding areas. The NPDES discharge from this facility consists of untreated effluent from salmon and shad rearing through Outfall 001. The location of the Nashua National Fish Hatchery and the outfall are depicted in Attachment A.

II. Description of Discharge

The rearing of Atlantic Salmon and American Shad at Nashua National Fish Hatchery produces a waste stream similar in nature to that of other fish hatcheries. The pollutants of significant concern include nutrients (nitrogen and phosphorus), biochemical oxygen demand (BOD), and total suspended solids (TSS). Additional parameters of concern are formaldehyde, pH, dissolved oxygen, total residual chlorine, and temperature.

III. Receiving Water Description

The facility discharges through Outfall 001 to a wetland that is connected by surface water via a culvert to the Nashua River (Segment, NHRIV700040402-08). The Nashua River flows to the Merrimack River, which flows to the Atlantic Ocean. The wetland and Nashua River are classified as Class B pursuant to Chapter 485-A:8 of the New Hampshire Statutes and Chapter Env-Ws 1703.02(b) of the New Hampshire's Surface Water Quality Regulations. Chapter 485-A:8 states that Class B waters have the following designated uses: *The waters of this classification shall be considered as being acceptable for fishing, swimming and other recreational purposes and, after adequate treatment, for use as water supplies.* The narrative and numeric criteria that apply to the wetland are those that apply to Class B waters.

IV. Limitations and Conditions

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedule (if required) may be found in the draft permit.

V. Permit Basis: Statutory and Regulatory Authority

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. This Draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable State regulations. During development, EPA considered the most recent technology-based treatment requirements, and water quality-based requirements. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. The general conditions of the Draft Permit are based on 40 CFR §122.41 and consist primarily of management requirements common to all permits. The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the CWA in accordance with 40 CFR §122.41(j), §122.44(i) and §122.48.

A. Technology-Based Requirements

Subpart A of 40 CFR §125 establishes criteria and standards for the imposition of technology based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated effluent limitations and Best Professional Judgement (BPJ), for case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA.

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (See 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. In general, technology-based effluent guidelines for non-POTW facilities must have been complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 [See 40 CFR §125.3(a)(2)]. Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA can not be authorized by a NPDES permit.

A concentrated aquatic animal production (CAAP) facility is defined in 40 Code of Federal Regulations (CFR) Section 122.24(b) to mean “a hatchery, fish farm, or other facility which meets the criteria in appendix C of this part, or which the Director designates under paragraph (c) of this section.” Specifically, for cold water fish species, Appendix C defines a CAAP as a facility that discharges at least 30 days per year, but excludes those facilities which produce less than 20,000 pounds (lbs) of harvestable weight of fish in a given year and which feed less than 5,000 lbs of food during the calendar month of maximum feeding. [See 40 CFR §122.24, §122.25 and Appendix C of §122].

EPA-New England has made a case-by-case determination as allowed in 40 CFR §122.24(c) that the Nashua National Fish Hatchery, which discharges more than 30 days a year, is a “significant contributor of pollutants to waters of the United States”, and thus a CAAP facility subject to an

NPDES permit. Factors used by the Agency in making that determination are that the hatchery discharges: to a wetlands adjacent to the Nashua River which has no available dilution; and effluent containing Formaldehyde solution, a toxic chemical, used to control external parasites on fish and eggs. This designation addresses the location and quality of the receiving water of the United States and the quantity and nature of the pollutants reaching waters of the United States pursuant to 40 CFR §122.24(c)(1)(i) and §122.24(c)(iii), respectively.

On August 23, 2004, the Agency promulgated new Effluent Limitations Guidelines and New Source Performance Standards (hereinafter referred to as ELGs) for discharges from Concentrated Aquatic Animal Production (CAAP) facilities at 40 CFR §451.11. Typically, ELGs express effluent limitations in the form of numeric standards for specific pollutants, but this ELG expresses effluent limitations in the form of narrative standards and best management practices (BMPs) in order to achieve reduced discharges of total suspended solids (TSS) and other materials that are generated during the process of culturing (raising) fish. The practices governed by these limitations include solids control, materials storage, structural maintenance, recordkeeping, and training [See 69 FR 51892-51930 August 23, 2004].

Accordingly, the general reporting requirements detailed in 40 CFR Section 451.3 have been incorporated into the Draft Permit. They require the permittee to report drug usage, spills, structural failure and/or damage to rearing units as well as to develop, implement and maintain a best management practices (BMP) plan for the facility. The BMP must address solids control, materials storage, structural maintenance of culture units and related equipment, recordkeeping and training at the hatchery. Section 451.3 also allows the permitting authority to modify the required BMP plan requirements based on its exercise of best professional judgement (BPJ). Based on the Agency's BPJ authority, three additional categories have been added to the draft permit: (1) detailing precautions taken to prevent aquatic organisms that are not indigenous nor naturalized to New Hampshire waters from becoming established in local surface waters; (2) identifying and quantifying all aquaculture drugs and chemicals used at this facility; and (3) describing where settled solids are placed after removal from culture units. The Agency believes these additional requirements are needed to protect the receiving waters from release of non-indigenous species and to better understand the full range of aquaculture drugs and chemicals used in the treatment of pathogens at this facility and their potential for discharge to the environment.

B. Water Quality-Based Requirements

Water quality-based criteria are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water-quality standards (See Section 301(b) (1)(C) of the CWA). Water quality-based criteria consist of three (3) parts: 1) beneficial designated uses for a water body or a segment of a water body; 2) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s) of the water body; and 3) anti-degradation requirements to ensure that once a use is attained it will not be degraded. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d).

Receiving water requirements are established according to numerical and narrative standards in the state's water quality standards adopted under state law for each stream classification. Narrative criteria from the state's water-quality standards are often used to limit toxicity in discharges where: (1) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard, such as for formalin; or (2) toxicity cannot be traced to a specific pollutant.

New Hampshire's Surface Water Quality Regulations can be found at Env-Ws 1700. The current set of these Regulations were adopted on December 3, 1999, and became effective on December 10, 1999. Hereinafter, these New Hampshire's Surface Water Quality Regulations are referred to as the NH Standards.

C. Anti-Backsliding

EPA's anti-backsliding provision as identified in Section 402(o) of the Clean Water Act and at 40 CFR §122.44(l) prohibits the relaxation of permit limits, standards, and conditions unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued. Anti-backsliding provisions apply to effluent limits based on technology, water quality, BPJ and State Certification requirements. Relief from anti-backsliding provisions can only be granted under one of the defined exceptions [See 40 CFR §122.44(l)(i)]. All limits included in the Draft Permit are at least as stringent as those in the previous permit, issued August 28, 1974.

D. Antidegradation

The New Hampshire Antidegradation Policy, which is found at Env-Ws 1708, applies to any new or increased activity that would lower water quality or affect existing or designated uses, including increased loadings to a waterbody from an existing activity. The antidegradation regulations focus on protecting high quality waters and protecting and maintaining water quality necessary to protect existing uses.

The Draft Permit includes new monitoring requirements for BOD₅, TSS, and nutrients as well as effluent limits for dissolved oxygen and formalin. In addition, the Draft Permit requires the facility to implement best management practices to minimize pollutant discharges, including a requirement for solid removal treatment for all cleaning water discharges. None of these requirements were included in the facility's previous permit, which limited only flow, settleable solids, and pH. Given the new stringent permit limits, it is likely that the facility will not increase its loading to the receiving water compared to its existing operations. EPA expects the State of New Hampshire, during the review of this draft permit as part of the State Certification process, to determine that there will be no lowering of water quality and no loss of existing uses as a result of the discharge authorized by this permit, and that no additional antidegradation review is warranted at this time.

VI. Explanation of the Permit's Effluent Limitation(s)**A. Facility Information**

The Nashua National Fish Hatchery is located 151 Broad Street in Nashua, NH and is operated by the United States Fish and Wildlife Service. The facility is a “broodstock” hatchery, which specializes in rearing fish to adult size then harvesting the eggs from those fish for other hatcheries to raise for the release to New England lakes and rivers. Atlantic Salmon and American Shad are raised from eggs, and Atlantic salmon remain at the facility one to four years before being transferred to the wild or to another facility.

Atlantic salmon rearing units at this hatchery complex consist of 64 egg trays, 25 square tanks, 20 raceways (two sets of 10), and 3 oval pools. The egg room at the facility contains the 64 egg trays, where the fish eggs are kept in a flow thru system. The 25 square tanks measure 6 feet by 6 feet and are used to house the fry, which are fish between the ages of 1 month and 1 year. According to the facility, flow in each of the square tanks is approximately 1-4 gallons per minute. The 20 raceways are connected in two parallel sets of 10 such that water flows freely (by gravity) to all units in a set with water flowing from one unit to the next. These concrete raceways measure 8 feet by 100 feet and flow rate is on the order of hundreds of gallons per minute. The 3 concrete oval pools measure 22 feet by 26 feet and are used to house Atlantic salmon that have returned from the ocean and are preparing for spawning. Water flows through one tank at a time at a rate of about 10 gallons per minute. Water for the rearing units is provided by three nearby wells, with one or two wells used at a time.

The water level in each of the linear raceways is controlled by flash boards at the downstream end. Just upstream of the flash boards are the fish retaining racks (screens) to keep fish within the individual raceway units/segments. Between the flash boards and the fish racks is a quiescent zone into which solids (fish feces and uneaten food particles) settle from the overflow water just before it discharges from the raceway. Most of the solid wastes from the fish are settled and captured in the raceways and ponds, and removed by a vacuum pump at least bi-weekly. This procedure does not require the raceways to be emptied of water or fish. According to the permittee, once or twice a year, when the fish are moved around and the tanks and raceways are emptied, brushes are also used to remove algae that have built up on the tank surface over time.

American shad rearing units at this hatchery consist of 2 adult tanks, 6 fry tanks, and 20 egg jars. The adult tanks are 12 feet in diameter and 4 feet in height. The fry tanks are 6 feet in diameter and 3 feet in height. Water from the egg jars and fry tanks is heated and normally re-circulated into the adult tanks. Water that has received any form of treatment is not re-circulated into the adult tanks. Approximately 18 – 20 gallons per minute is used in the shad culture system.

Fish in the rearing units are fed by hand broadcasting fish food onto the surface of each active rearing unit and through “demand” systems that are activated by the fish. In the raceways, the demand systems are shaped like a funnel with a pole at the bottom. When a fish bumps into the pole, food is released through the opening between the pole and the funnel. For fish in the fry tanks, a timer system vibrates every 15 minutes or so to release food into the water. Fish in the

oval concrete pools, which are the Atlantic salmon from the ocean, are not fed until after they have spawned. Adult shad also do not receive food.

As mentioned earlier, solids in the culture water are generated from only two sources: fish feces and uneaten food particles. Water flows, on a continuous basis, through each of the various rearing units containing fish and entrains a portion of the fish feces and uneaten food in it; however, the bulk of these solids settle to the bottom of each rearing unit for later removal at regular intervals during the cleaning process. For permit purposes, hatcheries have two types of water flow that discharge pollutants to the receiving water. They are “overflow water” which flows continuously through the rearing units and contains relatively low concentrations of solids and, “cleaning water” which contains significant concentrations of settled solids from the bottom of individual rearing units. Cleaning water is herein defined as “water that contains settled solids that have accumulated on the bottom of active rearing units that is vacuumed along with a portion of the culture water during periodic cleaning operations”. According to the facility, this water currently receives no treatment prior to discharge.

When needed, U.S. Food and Drug Administration (FDA)-approved chemicals/drugs are used as therapeutants to maintain fish health. Formalin (37% Formaldehyde Gas in Water with 16% Methanol) is added as needed to culture water to control external parasites on fish and eggs. It is used primarily to kill swimming zoospores and filamentous hyphae of common mold (fungus) that attach to eggs, gills and/or skin as well as other active parasitic infections. The FDA restricts the use of formalin solution to three products with the following trade names: Formalin-F, Paracide-F and Parasite-S.

Sodium Hypochlorite at 5.25 % (Ordinary Household Bleach in Liquid Form) is used to disinfect hatchery equipment and the individual rearing units, as needed. Hypochlorite solutions used to disinfect hatchery equipment (nets, boots, brushes, foot baths, rakes, transport tanks, etc.) *are not* discharged to the hatchery water and any hypochlorite solution remaining on that equipment is neutralized with sodium thiosulfate prior to its re-introduction into the culture water. If the hatchery needs to disinfect any rearing units, the fish and culture water would first be removed followed by brushing down all surfaces in contact with the culture water with a hypochlorite solution. In turn, that would be followed by a brushing down with sodium thiosulfate to neutralize the chlorite ion followed by an on the spot test using phenolphthalein indicator solution to determine if neutralization has been completed. It is standard practice to use sodium thiosulfate to neutralize chlorine (i.e., a dechlorination agent).

B. Permitted Outfall

Discharges of “overflow water”, as defined in Part VI.A. of this Fact Sheet, are permitted through Outfall 001 by this NPDES permit. The source of water, used for the rearing of Atlantic Salmon and American Shad, is several on-site wells. Effluent is discharged through an underground pipe that extends beneath several roadways and discharges into a wetland connected to the Nashua River, which later flows into the Merrimack River. The direct discharge of solids contained in “cleaning water” from the routine vacuuming of the rearing units is prohibited by the Draft Permit. However, the discharge of decant water that accumulates above the solids in a settling pond, lagoon, empty rectangular raceway or circular pool that is

used for the purposes of settling “cleaning water” solids is allowed. All wastewater from the offices, lab, and restrooms goes to the city of Nashua WWTF.

C. Derivation of Effluent Limits under the Federal CWA and/or the State of New Hampshire Water Quality Standards

The Draft Permit establishes effluent limitations and/or monitoring requirements for flow, pH, total suspended solids (TSS), biochemical oxygen demand (BOD), nitrogen, phosphorus, dissolved oxygen (DO), temperature, and formaldehyde. The effluent limits and monitoring requirements are described below:

1. Flow

The Draft Permit contains a daily maximum flow limit of 2.2 million gallons per day (MGD). This is based on estimates provided by the facility and represents the flow from all rearing units for both Atlantic Salmon and American Shad.

2. pH

The limits (range) in pH included in the Draft Permit are 6.5-8.0 standard units and are based upon NH Standards. Historically, the NHDES-WD has required pH limits to be satisfied at end-of-pipe with no allowance for dilution, and this is appropriate for the Nashua Hatchery discharge because there is no available dilution in the receiving water.

However, a change in the pH range in the draft permit would be considered if the applicant can demonstrate, to the satisfaction of NHDES-WD, that the in-stream NH Standards for pH would be protected. Specifically, the demonstration must show that the pH range limits should be widened due to naturally occurring conditions in the receiving water. Upon satisfactory completion of a demonstration study, the applicant or NHDES-WD may request in writing that the permit limits be modified by EPA-New England to incorporate the results of the demonstration.

Anticipating the situation where NHDES-WD grants a formal approval changing the pH limit(s) to outside the 6.5 to 8.0 Standard Units (S.U.), EPA-New England has added a provision to this Draft Permit (See SPECIAL CONDITIONS section). That provision will allow EPA-New England to modify the pH limit(s) using a certified letter approach. See **STATE PERMIT CONDITIONS** in the Draft Permit.

If the State approves results from a pH demonstration study, this permit's pH limit range can be relaxed in accordance with 40 CFR 122.44(l)(2)(i)(B) because it will be based on new information not available at the time of this permit's issuance. This new information includes results from the pH demonstration study that justifies the application of a less stringent effluent limitation. EPA-New England anticipates that the limit determined from the demonstration study as approved by the NHDES-WD will satisfy all effluent requirements for this discharge category and will comply with NH Standards with regard to instream conditions.

3. Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS)

Even though the CAAP's ELG does not require monitoring to judge the effectiveness of the BMP plan, there is no prohibition against such monitoring in the newly promulgated regulations. Based on the sensitive nature of the receiving water, the Draft Permit contains monitoring requirements for TSS and BOD in addition to the aforementioned narrative limitations. The reporting of concentrations of TSS and BOD will monitor the effectiveness of the BMP plan and the prohibition on the direct discharge of cleaning water. In addition, monitoring will ascertain the range of pollutant concentrations discharged to the receiving water, thus enabling the Agency to determine if those levels of suspended solids and associated biodegradable loads cause or contribute to an exceedance of NH Standards through a detrimental effect on the receiving water.

4. Nutrients (Nitrogen and Phosphorus)

Nutrients are a pollutant of concern in fish hatchery wastewater and the Draft Permit requires total nitrogen and total phosphorus monitoring to be performed quarterly along with the BODs and TSS sampling to obtain data necessary to evaluate the impact of these pollutants on the quality of the receiving water. Nutrient monitoring has been a requirement in all hatchery permits issued in New Hampshire since 2004.

5. Total Residual Chlorine

Even though hypochlorite solutions are used at the hatchery, EPA-New England does not believe their use as described in Part VI.A. of this Fact Sheet will lead to its presence in the effluent, given that the hypochlorite solutions are not discharged into the culture water and any hypochlorite solution remaining on the equipment is neutralized with sodium thiosulfate prior to its exposure to that culture water. Also, if any residual hypochlorite solution should remain on the equipment following neutralization, it would dissipate in the large volume of culture water prior to its discharge. Therefore, EPA-New England has determined that the hatchery's discharge has no reasonable potential to cause, or contribute to an instream excursion above the numeric water-quality criteria for total residual chlorine (TRC) in the NH Standards. However, if a TRC limits were ever needed, the outfall would have a maximum daily limit of 19 micrograms per liter ($\mu\text{g/l}$) and an average monthly limit of 11 $\mu\text{g/l}$ corresponding to the TRC acute and chronic aquatic life criteria of 19 and 11 $\mu\text{g/l}$, respectively, in the NH Standards because the outfall has no available dilution with the receiving water.

6. Dissolved Oxygen (DO)

The NH Standards require that the instream dissolved-oxygen content be at least 75 % of saturation, based on a daily average, and that the instantaneous minimum dissolved-oxygen concentration be at least 5 mg/l for Class B waters [see Env-Ws 1703.07(b)].

It is critical that effluent dissolved-oxygen concentrations be maintained at levels that will not cause or contribute to violations of NH Standards. The Draft Permit requires that the concentration of DO be equal to or greater than 5 mg/l at all times. In addition, the percent saturation must be calculated from the dissolved-oxygen concentration to determine if the

discharge causes or contributes to exceedances of that part of the NH Standards in the receiving water. When formalin is absent from the discharge, the Draft Permit requires the concentration of DO to be sampled and the percent saturation of DO to be calculated once (1) per month. At times when formalin is being used, and is therefore present in the discharge, the frequency is once (1) per week.

7. Formalin

CAAP facilities commonly use biocides. The most common of which are formalin products such as Paracide-F, Formalin-F or Parasite-S which contain approximately 37 % by weight formaldehyde (gas) in water. Formalin is used for the therapeutic treatment of fungal infections on the eggs of finfish and to control certain external protozoa and monogenetic trematodes on all finfish species. This means that formalin is more toxic to the invertebrate species than to vertebrates, for it is formulated to selectively kill certain attached organisms, but not the finfish themselves when properly applied. Based on the sensitivity of invertebrate species, it is more important to develop limits to protect these species than vertebrate species when setting the necessary permit limits to protect the receiving water's aquatic environment from the effects of formalin in a discharge. In the receiving waters, these invertebrates are an integral part of the food chain for finfish.

Formalin use should be consistent with U.S. Food and Drug Administration (FDA) labeling instructions as per 21 CFR §529.1030. As an example of the formalin application rates for finfish to control external protozoa, such as the parasite *Ichthyophthirius* commonly referred to as ICH, FDA labeling instructions allow applications up to one hour a day with concentrations up to

170 mg/l for tanks and raceways at water temperatures above 50 degrees Fahrenheit and every other day indefinitely with concentrations that range from 15 to 25 mg/l for earthen ponds regardless of water temperature. Finfish eggs may be treated up to 15 minutes per day with concentrations not to exceed 2,000 mg/l. **Note: These application rates are only presented as examples and any drug application should always be made in accordance with the container's labeling instructions.** While the prophylactic use of formalin (i.e., drugs and chemicals used to prevent specific disease(s) in the absence of their symptoms) is not mentioned in those FDA regulations, EPA-New England will only allow its use under the extralabel or INAD provisions of the Federal Food, Drug and Cosmetic Act as a "best management practice" to control the excessive use of drugs.

Existing toxicity data indicates that formalin is toxic to aquatic organisms at concentrations below FDA labeling guidelines. Currently there are no acute and chronic aquatic-life criteria for either formalin or formaldehyde in the NH Standards. However, New Hampshire law states that, "all surface waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life;...." (N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, Chapter Env-Ws 1703.21(a)(1). Therefore, in the absences of specific formalin or formaldehyde aquatic-life acute and chronic criteria in the NH Standards, EPA-New England has decided to impose formaldehyde limits in the draft permit based on acute and chronic aquatic-life criteria taken from the *Derivation of Ambient Water Quality Criteria for Formaldehyde*, Hohreiter, David W. and Rigg, David K.,

Journal of Science for Environmental Technology in Chemosphere, Vol. 45, Issues 4-5, November 2001, pgs. 471-486, thus ensuring Env-Ws 1703.21(a)(1) is satisfied. EPA-New England believes that since these criteria were developed in accordance with the United States Environmental Protection Agency's (U.S. EPA's) *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* they are appropriate for use in limit setting purposes. From that publication, the acute and chronic aquatic-life criteria for formaldehyde are 4.58 and 1.61 mg/l, respectively. [Note: To express formaldehyde aquatic-life criteria as formalin criteria divide formaldehyde criteria by 0.37 for formalin contains 37 % formaldehyde.] Since the effluent will be analyzed for the formaldehyde portion of formalin, average monthly and maximum daily permit limits will be expressed as formaldehyde when formalin is administered to active rearing units for parasite control. Because there is no available dilution in the receiving water, the acute aquatic-life criteria becomes the maximum daily limit and the chronic aquatic-life criteria becomes the average monthly limit. This means that the maximum daily and average monthly limits are 4.58 and 1.61 mg/l, respectively. These limits apply at all times, but the monitoring requirements in the Draft Permit are "when-in-use", since formalin is used sparingly throughout the year.

For this permit, the minimum quantification level (ML) for formaldehyde is 0.050 mg/l or 50 µg/l as established in Method 1667, Revision A in accordance with EPA's *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991*, page 111. Any value below the ML shall be reported as zero until written notice is received by certified mail from EPA-New England indicating some value other than zero is to be reported for a given ML (i.e., between zero and the ML).

8. Best Management Practices (BMP) Plan

The ELGs contained in 40 CFR §451.11 are narrative limitations that describe Best Management Practices (BMPs) to which the facility must adhere. These practices require the permittee to develop and employ methods for feed management, removal of accumulated solids, storage of drugs and pesticides, spill prevention, management of the wastewater treatment system, maintaining accurate records, and ensuring that all personnel receive proper training. In addition to these practices, 40 CFR §451.11 allows the permitting authority to modify the required BMP plan requirements based on its exercise of Best Professional Judgement (BPJ). Based on the Agency's BPJ authority, three additional categories have been added to the Draft Permit: (1) detailing precautions taken to prevent aquatic organisms that are not indigenous nor naturalized to New Hampshire waters from becoming established in local surface waters; (2) identifying and quantifying all aquaculture drugs and chemicals used at this facility; and (3) describing where settled solids are placed after removal from culture units. These additional requirements have been incorporated in similar permits such as the Berlin State Fish Hatchery (NH0000621) and Twin Mountain State Fish Hatchery (NH0000744) and the Agency believes they are needed to protect the receiving waters from release of non-indigenous species and to better understand the full range of aquaculture drugs and chemicals used in the treatment of pathogens at this facility and their potential for discharge to the environment.

VII. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Sect. 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits or undertakes, "may adversely impact any essential fish habitat." 16 U.S.C. Sect. 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." 16 U.S.C. Sect. 1802(10). Adverse impact means any impact which reduces the quality and/or quantity of EFH. 50 CFR Sect. 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions.

Essential Fish Habitat is only designated for fish species for which federal Fisheries Management Plans exist. 16 U.S.C. Sect. 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. EPA's review of available EFH information indicates that the wetland to which the facility discharges is not designated EFH for any federally managed species. Thus EPA has determined that EFH consultation with NMFS is not required.

VIII. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) typically administer Section 7 consultations for bird, terrestrial, and freshwater species. The National Marine Fisheries Service (NMFS) typically administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, or plants to see if any such listed species might potentially be impacted by the re-issuance of this NPDES permit. EPA believes the proposed limits are sufficiently stringent to assure that water quality standards will be met and to ensure protection of aquatic life and maintenance of the receiving water as an aquatic habitat. The Region finds that adoption of the proposed permit is unlikely to adversely affect any threatened or endangered species or its critical habitat. If adverse effects do occur as a result of this permit action, or if new information becomes available that changes the basis for this conclusion, then EPA will notify and consultation promptly initiated with both the United States Fish and Wildlife Service and National Marine Fisheries Service.

IX. Monitoring

The permittee is obligated to monitor and report sampling results to EPA and the NHDES-WD within the time specified within the permit. Timely reporting is essential for the regulatory agencies to expeditiously assess compliance with permit conditions.

The effluent monitoring requirements in the draft permit have been established to yield data representative of the discharge under the authority of Section 308(a) of the ACT in accordance with 40 CFR §§ 122.41(j), 122.44(i) and 122.48. It is the intent of EPA and NHDES-WD to establish minimum monitoring frequencies in all NPDES permits at permit modification and/or reissuances that make sense from both an environmental and human health perspectives. Compliance monitoring frequency and sample type have been set after considering the intended purpose and use of the data, configuration of the physical plant including its flow and feeding regimes at the hatchery. Normally, monitoring frequencies in NPDES permits issued in New Hampshire are set according to a EPA/NHDES-WD's Effluent Monitoring Guidance (EMG) mutually agreed upon and first implemented in March 1993 and last revised on July 19, 1999. However, because that guidance was developed for use in permitting Publicly Owned Treatment Works (POTWs) and industrial facilities, it is not applicable to hatcheries; therefore, has not been used to set monitoring frequencies in this draft permit.

X. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water-Quality Standards or waives its right to certify as set forth in 40 CFR §124.53. State Water-Quality Standards contain three major elements: Beneficial uses; Water-Quality Criteria; and an Antidegradation Policy, all of which are part of the State's Water-Quality Certification under Section 401 of the Act. The only exception to this is the sludge conditions/requirements, which are not part of Section 401 certifying requirements. The New Hampshire Department of Environmental Services, Water Division is the certifying authority. EPA has discussed this draft permit with the Staff of the NHDES Wastewater Engineering Bureau and expects that the draft permit will be certified. Regulations governing state certification are set forth in 40 CFR §§124.53 and 124.55.

XI. Comment Period, Hearing Requests, and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Sara Green, U.S. EPA, Office of Ecosystem Protection, Industrial Permits Branch, 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft

Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

XII. EPA Contact

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Sara Green, EPA New England – Region I
One Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023
Telephone: (617) 918-1574 FAX: (617) 918-0574
Email: green.sara@epa.gov

10/29/2007

**Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency**

ATTACHMENT A
Nashua National Fish Hatchery (NH0023515)
Site Locus Map

